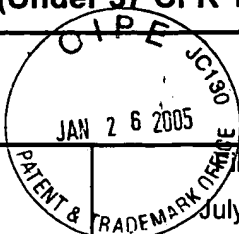


**TRANSMITTAL OF INFORMATION DISCLOSURE STATEMENT**  
(Under 37 CFR 1.97(b) or 1.97(c))

IFJ  
Docket No.  
56029/41936

In Re Application Of:  
Mueckler et al.

Serial No.  
10/621,485



Filing Date  
July 16, 2003

Examiner  
Susan Emily Fernandez

Group Art Unit  
1614

Title:

***Cell-Free Assay for Insulin Signaling***

Address to:  
Mail Stop Amendment  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**37 CFR 1.97(b)**

1. ☒ The Information Disclosure Statement submitted herewith is being filed within three months of the filing of a national application other than a continued prosecution application under 37 CFR 1.53(d); within three months of the date of entry of the national stage as set forth in 37 CFR 1.491 in an international application; before the mailing of a first Office Action on the merits, or before the mailing of a first Office Action after the filing of a request for continued examination under 37 CFR 1.114.

**37 CFR 1.97(c)**

2. ☐ The Information Disclosure Statement submitted herewith is being filed after the period specified in 37 CFR 1.97(b), provided that the Information Disclosure Statement is filed before the mailing date of a Final Action under 37 CFR 1.113, a Notice of Allowance under 37 CFR 1.311, or an Action that otherwise closes prosecution in the application, and is accompanied by one of:

☐ the statement specified in 37 CFR 1.97(e);

**OR**

☐ the fee set forth in 37 CFR 1.17(p).

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1614

**Payment of Fee**

(Only complete if Applicant elects to pay the fee set forth in 37 CFR 1.17(p))

- ☐ A check in the amount of \_\_\_\_\_ is attached.
- ☒ The Assistant Commissioner is hereby authorized to charge and credit Deposit Account No. 20-0823 as described below. A duplicate copy of this sheet is enclosed.
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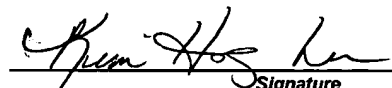
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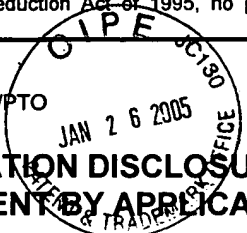
  
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Kimberly H. Lu, Reg. No. 51,973  
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St. Louis, Missouri 63101-9928  
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			Application Number	10/621,485	
			Filing Date	July 16, 2003	
			First Named Inventor	Mueckler et al.	
			Art Unit	1614	
			Examiner Name	Susan Emily Fernandez	
Sheet	1	of	6	Attorney Docket Number	56029-41936

U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No. <sup>1</sup>	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code <sup>2</sup> (if known)			
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		US-			

FOREIGN PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> -Number <sup>4</sup> -Kind Code <sup>5</sup> (if known)				

OTHER PRIOR ART – NON PATENT LITERATURE DOCUMENTS			
Examiner Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial; symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published	T <sup>2</sup>
	AA	ALESSI, D. et al., Mechanism of Activation of Protein Kinase B by Insulin and IGF-1, The EMBO Journal, 1996, 15 (23): 6541-6551	
	AB	ALESSI, D. et al., 3-Phosphoinositide-Dependent Protein Kinase-1 (PDK1): Structural and Functional Homology with the <i>Drosophila</i> DSTPK61 Kinase, Current Biology, September 18, 1997, 7 (10): 776-789	
	AC	ALESSI, D. et al., Characterization of a 3-Phosphoinositide-Dependent Protein Kinase Which Phosphorylates and Activates Protein Kinase Ba, Current Biology, March 19, 1997, 7 (4): 261-269	
	AD	BALENDRAN, A. et al., PDK1 Acquires PDK2 Activity in the Presence of a Synthetic Peptide Derived from the Carboxyl Terminus of PRK2, Current Biology, April 8, 1999, 9 (8): 393-404, S1-S3	
	AE	BEHN-KRAPPA and NEWTON, The Hydrophobic Phosphorylation Motif of Conventional Protein Kinase C is Regulated by Autophosphorylation, Current Biology, June 30, 1999, 9 (14): 728-737	
	AF	BRAZIL and HEMMINGS, Ten Years of Protein Kinase B Signalling: A Hard Akt to Follow, TRENDS in Biochemical Sciences, November 2001, 26 (11): 657-664	

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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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			Filing Date	July 16, 2003	
			First Named Inventor	Mueckler et al.	
			Group Art Unit	1614	
			Examiner Name	Susan Emily Fernandez	
Sheet	2	of	6	Attorney Docket Number	56029-41936

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
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	AG	CALDERHEAD, D. et al., Insulin Regulation of the Two Glucose Transporters in 3T3-L1 Adipocytes, The Journal of Biological Chemistry, August 15, 1990, 285 (23): 13800-13808	
	AH	CLARK, S. et al., Intracellular Localization of Phosphatidylinositol 3-Kinase and Insulin Receptor Substrate-1 in Adipocytes: Potential Involvement of a Membrane Skeleton, The Journal of Cell Biology, March 9, 1998, 140 (5): 1211-1225	
	AI	COFFER, P. et al., Protein Kinase B (c-Akt): A Multifunctional Mediator of Phosphatidylinositol 3-Kinase Activation, Biochem. J., 1998, Great Britain, 335: 1-13	
	AJ	CLARKE, J. et al., Research Communication – Inhibition of the Translocation of GLUT1 and GLUT4 in 3T3-L1 Cells by the Phosphatidylinositol 3-Kinase Inhibitor, Wortmannin, Biochem. J., 1994, Great Britain, 300: 631-635	
	AK	CRITCHLEY, David R., Focal Adhesions – the Cytoskeletal Connection, Current Opinion in Cell Biology, 2000, 12: 133-139	
	AL	CURRIE, R. et al., Role of Phosphatidylinositol 3,4,5-Trisphosphate in Regulating the Activity and Localization of 3-Phosphoinositide-Dependent Protein Kinase-1, Biochem. J., 1999, Great Britain, 337: 575-583	
	AM	DEDHAR, S. et al., Integrin-Linked Kinase (ILK): A Regulator of Integrin and Growth-Factor Signalling, <i>trends in CELL BIOLOGY</i> , August 1999, 9: 319-323	
	AN	DELCOMMENNE, M. et al., Phosphoinositide-3-OH Kinase-Dependent Regulation of Glycogen Synthase Kinase 3 and Protein Kinase B/AKT by the Integrin-Linked Kinase, Proc. Natl. Acad. Sci. USA, Cell Biology, September 1998, 95: 11211-11216	
	AO	DENU and TANNER, Specific and Reversible Inactivation of Protein Tyrosine Phosphatases by Hydrogen Peroxide: Evidence for a Sulfenic Acid Intermediate and Implications for Redox Regulation, Biochemistry, 1998, 37: 5633-5642	
	AP	EBINA, Y. et al., The Human Insulin Receptor cDNA: The Structural Basis for Hormone-Activated Transmembrane Signalling, Cell, April 1985, 40: 747-758	
	AQ	ENDEMANN, G. et al., Phosphatidylinositol Kinase or an Associated Protein is a Substrate for the Insulin Receptor Tyrosine Kinase, The Journal of Biological Chemistry, January 5, 1990, 265 (1): 396-400	

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			First Named Inventor	Mueckler et al.	
			Group Art Unit	1614	
			Examiner Name	Susan Emily Fernandez	
Sheet	3	of	6	Attorney Docket Number	56029-41936

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	AR	GAREN and LEVINTHAL, A Fine-Structure Genetic and Chemical Study of the Enzyme Alkaline Phosphatase of <i>E. Coli</i> , Biochim. Biophys. Acta, 1960, 38: 470-483	
	AS	GORDON, Julius A., Use of Vanadate as Protein-Phosphotyrosine Phosphatase Inhibitor, Methods in Enzymology, 1991, 201: 477-483	
	AT	HELLER-HARRISON, R. et al., Insulin Regulation of Membrane-Associated Insulin Receptor Substrate 1, The Journal of Biological Chemistry, October 13, 1995, 270 (41): 24442-24450	
	AU	HILL, M. et al., A Role for Protein Kinase B $\beta$ /Akt2 in Insulin-Stimulated GLUT4 Translocation in Adipocytes, Molecular and Cellular Biology, Nov. 1999, 19 (11): 7771-7781	
	AV	INOUE, G. et al., Development of an <i>In Vitro</i> Reconstitution Assay for Glucose Transporter 4 Translocation, PNAS, December 21, 1999, 96 (26): 14919-14924	
	AW	JAMES, D. et al., Molecular Cloning and Characterization of an Insulin-Regulatable Glucose Transporter, Nature, 1989, 338: 83-87	
	AX	JARETT, Leonard, Subcellular Fractionation of Adipocytes, Methods Enzymol 31: 60-71	
	AY	KELLY and RUDERMAN, Insulin-Stimulated Phosphatidylinositol 3-Kinase – Association with a 185-kDa Tyrosine-Phosphorylated Protein (IRS-1) and Localization in a Low Density Membrane Vesicle, The Journal of Biological Chemistry, February 25, 1993, 268 (6): 4391-4398	
	AZ	KHWAJA, A. et al., Matrix Adhesion and Ras Transformation Both Activate a Phosphoinositide 3-OH Kinase and Protein Kinase B/Akt Cellular Survival Pathway, The EMBO Journal, 1997, 16 (10): 2783-2793	
	BA	LAVAN and LIENHARD, The Insulin-Elicited 60-kDa Phosphotyrosine Protein in Rat Adipocytes is Associated with Phosphatidylinositol 3-Kinase, The Journal of Biological Chemistry, March 16, 1993, 268 (8): 5921-5928	
	BB	LAWLOR and ALESSI, PKB/Akt: A Key Mediator of Cell Proliferation, Survival and Insulin Responses?, Journal of Cell Science, 2001, 114: 2903-2910	

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			Examiner Name	Susan Emily Fernandez	
Sheet	4	of	6	Attorney Docket Number	56029-41936

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	BC	LYNCH, et al., Integrin-Linked Kinase Regulates Phosphorylation of Serine 473 of Protein Kinase B by an Indirect Mechanism, <i>Oncogene</i> , 1999, 18: 8024-8032	
	BD	MCDONALD, J. et al., Ability of Insulin to Increase Calcium Binding by Adipocyte Plasma Membranes, <i>Proceedings of the National Academy of Sciences of the United States of America</i> , May 1976, 73 (5): 1542-1546	
	BE	PERSAD, S. et al., Regulation of Protein Kinase B/Akt-Serine 473 Phosphorylation by Integrin-Linked Kinase – Critical Roles for Kinase Activity and Amino Acids Arginine 211 and Serine 343, <i>The Journal of Biological Chemistry</i> , July 20, 2001, 276 (29): 27462-27469	
	BF	PIPER, R. et al., Differential Sorting of Two Glucose Transporters Expressed in Insulin-Sensitive Cells, <i>Am. J. Physiol.</i> , 1991, 260 (Cell Physiol. 29): C570-C580	
	BG	REED, B. et al., Alterations in Insulin Binding Accompanying Differentiation of 3T3-L1 Preadipocytes, <i>Proceedings of the National Academy of Sciences of the United States of America</i> , Nov. 1977, 74 (11): 4876-4880	
	BH	RICE, K. et al., Regulation of Expression of pp160, a Putative Insulin Receptor Signal Protein, by Insulin, Dexamethasone, and 1-Methyl-3-Isobutylxanthine in 3T3-L1 Adipocytes, <i>The Journal of Biological Chemistry</i> , May 15, 1992, 267 (14): 10163-10167	
	BI	RUBIN, C. et al., Acquisition of Increased Hormone Sensitivity During <i>in Vitro</i> Adipocyte Development, <i>The Journal of Biological Chemistry</i> , May 25, 1977, 252 (10): 3554-3557	
	BJ	RUDERMAN, N. et al., Activation of Phosphatidylinositol 3-Kinase by Insulin, <i>Proc. Natl. Acad. Sci.</i> , February 1990, 87 (Cell Biology): 1411-1415	
	BK	SALTIEL and KAHN, Insulin Signalling and the Regulation of Glucose and Lipid Metabolism, <i>Nature</i> , 2001, 414: 799-806	
	BL	SCHLEMMER and SIROTNAK, Energy-Dependent Efflux of Methotrexate in L1210 Leukemia Cells – Evidence for the Role of an ATPase Obtained with Inside-Out Plasma Membrane Vesicles, <i>The Journal of Biological Chemistry</i> , July 25, 1992, 267 (21): 14746-14752	
	BM	SEALS, J. et al., Insulin Effect on Protein Phosphorylation of Plasma Membranes and Mitochondria in a Subcellular System from Rat Adipocytes, <i>The Journal of Biological Chemistry</i> , August 10, 1979, 254 (15): 6991-6996	

Examiner Signature	Date Considered
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			First Named Inventor	Mueckler et al.	
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			Examiner Name	Susan Emily Fernandez	
Sheet	5	of	6	Attorney Docket Number	56029-41936

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
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	BN	SHEPHERD, P. et al., Phosphoinositide 3-Kinase: The Key Switch Mechanism in Insulin Signalling, Biochem. J., 1998, Great Britain, 333: 471-490	
	BO	SIMPSON, I. et al., Insulin-Stimulated Translocation of Glucose Transporters in the Isolated Rat Adipose Cells: Characterization of Subcellular Fractions, Biochimica et Biophysica Acta, 1983, 763: 393-407	
	BP	SUMMERS, S. et al., Differentiation-Dependent Suppression of Platelet-Derived Growth Factor Signaling in Cultured Adipocytes, The Journal of Biological Chemistry, August 20, 1999, 274 (34): 23858-23867	
	BQ	TAKAKURA, K. et al., Rapid and Irreversible Inactivation of Protein Tyrosine Phosphatases PTP1B, CD45, and LAR by Peroxynitrite, Archives of Biochemistry and Biophysics, September 15, 1999, 369 (2): 197-207	
	BR	TOKER, A. et al., Cellular Signaling: Pivoting Around PDK-1, Cell, October 13, 2000, 103: 185-188	
	BS	TOKER, A. et al., Akt/Protein Kinase B is Regulated by Autophosphorylation at the Hypothetical PDK-2 Site, The Journal of Biological Chemistry, March 24, 2000, 275 (12): 8271-8274	
	BT	TORDJMAN, K. et al., Differential Regulation of Two Distinct Glucose Transporter Species Expressed in 3T3-L1 Adipocytes: Effect of Chronic Insulin and Tolbutamide Treatment, Proceedings of the National Academy of Sciences of the United States of America, October 15, 1989, 86 (20): 7761-7765	
	BU	ULLRICH, A. et al., Human Insulin Receptor and Its Relationship to the Tyrosine Kinase Family of Oncogenes, Nature, February 28, 1985, 313: 756-761	
	BV	VANHAESEBROECK and ALESSI, The PI3K-PDK1 Connection: More Than Just a Road to PKB, Biochem. J., 2000, Great Britain, 346: 561-576	
	BW	WATSON, R. et al, Lipid Raft Microdomain Compartmentalization of TC10 is Required for Insulin Signaling and GLUT4 Translocation, The Journal of Cell Biology, August 20, 2001, 154 (4): 829-840	
	BX	WHITE, Morris F., The IRS-Signalling System: A Network of Docking Proteins that Mediate Insulin Action, Molecular and Cellular Biochemistry, 1998, 182: 3-11	

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	BY	WHITE and KAHN, The Insulin Signaling System, The Journal of Biological Chemistry, January 7, 1994, 269 (1): 1-4	
	BZ	WILLIAMS, M. et al., The Role of 3-Phosphoinositide-Dependent Protein Kinase 1 in Activating AGC Kinases Defined in Embryonic Stem Cells, Current Biology, April 5, 2000, 10 (8): 439-448	
	CA	STEPHENS, L. et al., Protein Kinase B Kinases That Mediate Phosphatidylinositol 3,4,5-Trisphosphate-Dependent Activation of Protein Kinase B, Science, January 30, 1998, 279: 710-714	
	CB	KRIAUCIUNAS, K. et al., Cellular Compartmentalization in Insulin Action: Altered Signaling by a Lipid-Modified IRS-1, Molecular and Cellular Biology, Sept. 2000, 20 (18): 6849-6859	
	CC	INOUE, G. et al., Dynamics of Insulin Signaling in 3T3-L1 Adipocytes – Differential Compartmentalization and Trafficking of Insulin Receptor Substrate (IRS)-1 and IRS-2, The Journal of Biological Chemistry, May 8, 1998, 273 (19): 11548-11555	
	CD	CROSS, D. et al., Inhibition of Glycogen Synthase Kinase-3 by Insulin Mediated by Protein Kinase B, Nature, December 1995, 378: 785-789	
	CE	HOLGADO-MADRUGA, M. et al, A Grb2-Associated Docking Protein in EGF- and Insulin-Receptor Signalling, Nature, February 1996, 379: 560-563	

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